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NOTES ON AUSTRALIAN DIPTERA. No. x.

By J. R. Malloch.
(*Communicated by Dr. E. W. Ferguson.*)

(Twelve Text-figures.)

[Read 30th March, 1927.]

In this paper I present a revised synoptic key to the species of the genus *Drosophila* Fallén, with descriptions of some new species, a synopsis of the species of the genus *Homoneura* van der Wulp, descriptions and records of some species of the genus *Sapromyza* Fallén, and descriptions of some other acalyptrate Diptera, most of which have been received from Dr. E. W. Ferguson.

Family **Drosophilidae.**

Genus Mycodrosophila Oldenberg.

This genus is distinguished from *Drosophila* by the extremely short anterior pair of postsutural dorsocentral bristles, which, like the basal pair of scutellar bristles, are almost indistinguishable and by the humped up thoracic dorsum. All the known species are very similar in colour, glossy black on dorsum, with yellow abdominal markings and pale yellow on venter and sides of thorax. The flies occur commonly on the undersides of fungi in which the larvae feed.

I have before me a series of specimens belonging to a species which is evidently undescribed and one injured specimen which may possibly belong to another species.

Mycodrosophila argentifrons n. sp.

Male and female.—Head black, yellow on centre of frons from ocelli to anterior margin and on lower half of occiput, the face brownish, bases of antennae yellowish; orbits shining, rest of frons dull, when seen from in front densely silvery; proboscis yellow below, fuscous above; palpi fuscous. Thorax glossy black on dorsum, with a variable amount of yellow on anterior margin, sometimes in the form of two rudimentary vittae; scutellum when seen from in front brownish or yellowish dusted apically; pleura pale yellow, black on upper margin; postnotum black. Abdomen pale yellow, with a black fascia across hind margin of each tergite which is carried forward on the median line on tergites 3 to 5 and connects with a similar fascia on anterior margin leaving two yellow spots on each, the lateral margins of tergites wholly black. Legs pale yellow. Wings hyaline, with a deep black mark on costa before apex of first vein and a faint cloud extending from it over cell to second vein. Halteres black.

Head a little broader than thorax; frons at vertex nearly twice as wide as length at centre; all bristles, except the anterior reclinate one on each orbit, long; eyes almost bare; facial carina widened and flattened below; clypeus convex. Thorax quite conspicuously convex, the dorsal surface rather densely fine haired. Third costal division over half as long as second.

Length, 2-3 mm.

Type male, allotype, and 5 paratypes, Coramba, N.S.W., 15.2.25.

Genus Leucophenga Mik.

Leucophenga minuta n. sp.

Male.—Head testaceous, occiput and face, except sides, infuscated, frons slightly darkened above, but all these parts with dense white dusting so that in some positions they appear pale; palpi and antennae testaceous; cephalic bristles, except on vibrissal angles, yellow. Thorax testaceous yellow, densely white dusted, almost silvery when seen from certain angles, with evidences of a rufous vitta along each side of dorsum; a brownish vitta along centre of pleura; scutellum testaceous yellow; postnotum brown. Abdomen brownish, when seen from in front with quite dense silvery dusting on dorsum. Thoracic and abdominal hairs and bristles luteous. Legs testaceous yellow. Wings hyaline, a narrow fuscous cloud extending from apex of posterior basal cell obliquely to apex of first vein. Halteres missing in type.

Frons about twice as long as wide, parallel-sided, all bristles well developed; face slightly carinate on upper half; antennae normal; cheek linear; vibrissae short; palpi slender. Both sternopleurals long. Legs slender, no outstanding setulae on mid tibiae. First posterior cell of wing not narrowed apically; third costal section over half as long as second.

Length, 2 mm.

Type, Cairns District, Queensland (Dodd).

Distinguished from other Australian species known to me by the uniformly silvery white dusted dorsum, markings of the wings, and its small size.

Genus Drosophila Fallén.

As I have described a number of species of this genus since I published my key in the first paper of this series (These Proceedings, 1923, p. 615) I deem it expedient to present now an enlarged synopsis which includes 22 species, all at present known to me as occurring in Australia. I have found it necessary to draw up this key for my own convenience in identifying material and hope that it may prove as useful to other students of the group as it has to me for that purpose. There must be many Australian species of the genus unknown to me. Most of those herein included are similar to the general run of species of the genus throughout its range, but some, and especially *nicholsoni*, are aberrant, though not entitled, in my opinion, to subgeneric segregation. I have not attempted to figure the genitalia of either sex, some of which possess striking specific features, nor have I attempted to determine the structure of the eggs of the species. Some of the eggs are furnished with filaments at one end which vary in form and in number with the species and they may sometimes be as readily distinguished as any of the other stages, and in some closely allied species even more readily than the adults.

Key to the Species.

1. Wings with conspicuous fuscous markings in addition to those over the cross veins or at apex of first costal division 2
   Wings without fuscous markings except sometimes faint clouds over the cross veins or at apex of first costal division 3
2. Wing with a large brownish or fuscous spot at apex of second vein, the dark cloud at tip consisting of a brownish suffusion along the apices of third and fourth veins, more or less coalescent in first posterior cell; mesonotum dark brown, with three linear yellow vittae, the median one not reaching anterior margin; scutellum yellow in centre, dark brown on sides of disc; pleura whitish-yellow, contrasting sharply with the dark brown mesonotum .... *myctophaga* Malloch.

Wing without a dark spot at apex of second vein, the dark cloud at tip consisting of a broad curved brown patch which extends from middle of third section of costa to just over third vein and over disc of wing to beyond fourth vein, but leaves a hyaline spot in apex of first posterior cell; mesonotum brown, with two poorly defined paler vittae which are carried over lateral margins of scutellum, the centre of latter brown; pleura not noticeably paler than mesonotum ..... *polypori* Malloch.

3. Fore femora with a comb-like series of microscopic setulae on apical third or more of anteroventral surface 4
Fore femora without a comb-like series of microscopic setulae as above 5

4. Fore femora with short closely placed setulae on more than the apical half of posteroventral surfaces, the longest one, at apex, not longer than the femoral diameter; third section of costa not less than one-third as long as second; facial carina narrow ..... *setifemur* Malloch.
Fore femora with four or five widely spaced bristles on the entire length of each posteroventral surface, the longest one, at middle, as long as or longer than the femoral diameter; third section of costa about one-fourth as long as second; facial carina much broadened below ..... *immigrans* Sturtevant.

5. Thoracic dorsum with a minute but conspicuous dark brown or fuscous dot at base of each hair and bristle and sometimes with additional brown or fuscous dots on parts causing aggregations which assume the appearance of larger irregular spots, the ground colour of thoracic dorsum never testaceous yellow 6
Thoracic dorsum with or without dark or pale vittae, not copiously marked with piliferous spots or dots, if faintly marked with piliferous dots then the ground colour of thorax is testaceous yellow 9

6. Third costal division of wing almost as long as second; outer cross vein about one-third as long as apical section of fifth vein ..... *poecilothorax* Malloch.
Third costal section of wing not over one-third as long as second; outer cross vein much more than one-third as long as apical section of fifth vein 7

7. Facial carina practically absent except between bases of antennae, where it is sharp and linear; eyes almost bare ..... *obsoleta* Malloch.
Facial carina conspicuous below, where it is rather broad and usually longitudinally sulcate; eyes with dense stiff microscopic hairs 8

8. At least the first three tergites of abdomen with a yellowish spot on each side on the part that is incurved on venter ..... *repleta* Wollaston.
None of the abdominal tergites with yellowish spots as above .... *hydei* Sturtevant.

9. All hairs and bristles on insect luteous; thorax not vittate ..... *flavohirta* Malloch.
All hairs and bristles fuscous or blackish 10

10. Sides of face, frontal orbits, and two narrow submedian vittae on mesonotum which extend over its entire length and on to sides of scutellum, densely white dusted, the whole forming two continuous white lines on a black ground, and very conspicuous; sternopleurals 2 ..... *albostriata* Malloch.
Thoracic dorsum with or without dark vittae, not white vittate 11

11. Thoracic dorsum distinctly vittate 12
Thoracic dorsum entirely without vittae 16

12. Thoracic dorsum with five dark vittae, the intervening spaces pale grey dusted; wing with a deep black spot and two fine bristles on costa before apex of first vein; third costal section almost as long as second ..... *nigrovittata* Malloch.
Thoracic dorsum with four or six dark vittae, the intervening spaces inconspicuously pale dusted 13

13. Arista with but one long hair above at base, no long hairs below; face without a carina on lower portion; third costal section not over one-fourth as long as second, and shorter than penultimate section of fourth vein; sternopleurals 3 ..... *nicholsoni*, n. sp.
Arista with at least three long hairs above and one or two below 14

14. Palpi fuscous; face with a vestigial carina only on upper part, not carinate below; pleura with two dark vittae; third costal division over one-third as long as second and distinctly longer than penultimate section of fourth vein; sternopleurals 2 ..... *buscki* Coquillett.
Palpi testaceous yellow; face with a very conspicuous carina which is continued below middle, its lower portion broadened 15

15. Submedian thoracic vittae narrowed at posterior extremities, but continued to the hind margin of mesonotum, no dark central mark in front of scutellum; the two central series of hairs located on the inner margins of the submedian dark vittae ..... *lativittata* Malloch.
Submedian vittae not reaching posterior margin of mesonotum; a dark mark on centre of hind margin of latter; the two central series of hairs entirely within the pale central vitta, the next two series on edges of the dark submedian vittae ..... *enigma* n. sp.
16. Facial carina not developed except weakly on upper part between bases of antennae 17
Facial carina well developed and broadened on lower part of face 18
17. Thorax dull fuscous ..... *fuscithorax* Malloch.
Thorax testaceous yellow, sometimes with faint dark dots at bases of the bristles and hairs on dorsum ..... *inornata* Malloch.
18. Thorax more or less shining black 19
Thorax shining testaceous yellow 21
19. Third costal section distinctly more than half as long as second and longer than penultimate section of fourth vein (3:2); frons reddish or yellowish brown except on orbits and triangle, which are shining black, the anterior reclinate orbital bristle laterad of the proclinate one ..... *sydneyensis*, n. sp.
Third costal section about one-third as long as second and about as long as, or very little longer than, penultimate section of fourth vein 20
20. Frons dark brown, the orbits and triangle dull black; anterior reclinate orbital bristle well above the proclinate one; thorax shining, but not glossy ..... *subnitida* n. sp.
Frons black, the orbits and triangle shining, anterior reclinate orbital bristle but little above level of the proclinate one; thorax glossy ..... *nitidithorax*, n. sp.
21. Fore metatarsus of male with a comb of short black bristles on apical half, the second segment without a comb ..... *ampelophila* Loew.
Fore metatarsus and second segment each with a comb of black bristles from base to apex in male ..... *serrata*, n. sp.

[*Drosophila brunneipennis* Malloch described in These Proceedings, 1923, p. 617, has inadvertently been omitted. In the previous key *loc. cit.* p. 616 it is placed next to *D. melanogaster* Meigen = *D. ampelophila* Loew.—Ed.]

Drosophila nicholsoni, n. sp.

Male and female.—Testaceous yellow, shining. Frons opaque brownish, the orbits, sides of triangle, and anterior margin testaceous, not shining; third antennal segment largely fuscous; palpi and proboscis testaceous. Dorsum of thorax slightly brownish and greyish dusted with six brown vittae, the submedian pair of moderate width and complete, the intermediate pair much narrower and connected with the submedian pair behind suture, the sublateral pair broad, rather indistinct and broken at suture; pleura and metanotum largely brown; scutellum brown in centre, narrowly yellow on sides. Abdomen shining, apical tergites slightly darkened. Legs testaceous yellow. Wings greyish hyaline, veins not clouded. Halteres yellow.

Anterior reclinate bristle about one-third as long as posterior one and almost in transverse line with the proclinate one; postvertical bristles long interfrontalia with a few hairs anteriorly; facial carina distinguishable only on upper part; arista with one long hair on upper side at base and some short pubescence beyond, which is only visible under a high magnification; vibrissa single. Thorax with two humerals, about eight series of intradorsocentral setulae, the submedian two series on margins of the pale central vitta, and 3 sternopleurals. Legs normal. Second section of costa about four times as long as third, the latter not longer than penultimate section of fourth vein, ultimate section of fifth vein subequal to penultimate section of fourth and about twice as long as outer cross vein.

Length, 2·5-3 mm.

Type male, allotype, and 2 paratypes, Perth, W.A., 15.11.1924 (Nicholson).

This species is readily distinguished from any other known species in the genus either from Australia or elsewhere by the presence of but one long hair on the upper side of the arista. This character was used as the distinguishing feature of the American genus *Cladochaeta* by Coquillett, but the present species differs from that genus in many characters and is so obviously merely an aberrant *Drosophila* that I retain it in this genus, while noting that it apparently weakens the claim of *Cladochaeta* to generic recognition.

Drosophila nitidithorax, n. sp.

Male.—Deep black, dorsum of thorax and of abdomen almost glossy. Face whitish dusted and, like the cheeks, partly brownish yellow; frons except the orbits and triangle velvety black; antennae black; palpi and proboscis dusky testaceous yellow. Thorax without markings, the pleura not so conspicuously shining as dorsum. Abdomen slightly yellow at base. Legs dusky testaceous yellow, femora almost entirely fuscous. Wings greyish hyaline, veins unclouded. Halteres brownish yellow.

Frontal bristles strong, anterior reclinate orbital half as long as posterior one and slightly but distinctly above level of the proclinate one; interfrontalia with quite dense short black setulose hairs; facial carina nose-like, rounded above on the lower part; rays of arista about 4 + 2; vibrissae strong. Intradorsocentral setulae in 8-10 series; sternopleurals 3. Legs normal. Third costal section not longer than penultimate section of fourth vein and about one-third as long as second section; outer cross vein at about 1·5 its own length from apex of fifth vein.

Length, 2·5 mm.

Type and paratype, Perth, W.A., 15.11.1924 (Nicholson).

A robust black species which is most closely related to *subnitida* described below.

Drosophila subnitida, n. sp.

Female.—Distinguished from the preceding species by the brown colour of the frons, the opaque frontal orbits and less shining dorsum of thorax.

There are no outstanding structural distinctions, but the anterior reclinate bristle is larger and farther from the proclinate one, the third section of costa is a little longer and the insect is less robust.

Length, 2 mm.

Type, Sydney, N.S.W., 6.1.25.

This species has somewhat the appearance of *fuscithorax* Malloch, but the latter has no carina on lower part of face and differs in other respects.

Drosophila sydneyensis, n. sp.

Female.—Black, dorsum of thorax and abdomen almost glossy. Frons brownish red, orbits and triangle shining black; face yellowish on sides, slightly white dusted; cheeks yellowish; antennae yellowish or rufous, third segment fuscous; palpi and proboscis yellowish. Thorax as in *nitidithorax*, but the pleura as conspicuously shining as mesonotum. Abdomen with bases of basal two or three tergites yellowish. Legs as in *nitidithorax*. Wings hyaline. Halteres yellow

Frons with a few hairs in front; anterior reclinate orbital bristle short, in transverse line with proclinate one; facial carina well developed and nose-like.

Thorax as in *subnitida*. Legs normal. Wing venation differing from that of *nitidithorax* and *subnitida* in having the third costal division well over half as long as second, usually about, or even full, three-fourths as long as it, and twice as long as penultimate section of fourth vein, the latter subequal to ultimate section of fifth, and about twice as long as outer cross vein.

Length, 2 mm.

Type and three paratypes, Sydney, N.S.W., 3 and 5.1.1925, and 2.4.1925.

A less robust species than *nitidithorax*.

DROSOPHILA ENIGMA, n. sp.

Male and female.—Very similar to *lativittata* Malloch in colour and general structure. Differs from it in being paler, the ground colour being testaceous yellow, the dorsum of thorax greyish dusted, and with paler vittae which are narrower, the submedian pair separated by a wider space which covers four instead of two series of the short hairs, and the other characters of the markings as stated in the key. The abdominal markings consist of a dark brown fascia on hind margin of each tergite which is narrowed or interrupted in centre, widened each side of median line and again at the lateral curvature, the fasciae rather indistinct on the lateral incurved portions of the tergites. As in *lativittata* the outer cross vein is faintly clouded and the penultimate section of fourth vein is about half as long as ultimate.

Length, 3 mm.

Type male and allotype, Sydney, N.S.W., 22.7.23, and 23.9.24. Paratypes, two females, Toronto, N.S.W.

DROSOPHILA SERRATA, n. sp. (Text-figure 1.)

Male.—Shining fulvous yellow, very similar to *ampelophila* Loew which it closely resembles in many respects. The type specimen is rather immature, but the thorax is not vittate and the abdomen has a faint dark uninterrupted apical fascia on each tergite. The legs are yellow and the wings yellowish hyaline with unclouded veins. Halteres yellow. Bristles and hairs fuscous.

Anterior reclinate orbital bristle about one-third as long as posterior one and distinctly above the level of proclinate one; eyes quite densely stiff-haired; face distinctly carinate. Thorax with six series of intradorsocentral hairs; prescutellar acrostichals not differentiated; both humerals strong; only two sternopleurals well developed. Two basal segments of fore tarsus with a comb-like series of short stiff

Text-fig. 1. *Drosophila serrata*, two basal segments of fore tarsi of male from in front.

black bristles on anterior side, the comb on basal segment bipartite (Fig. 1). Third section of costa about half as long as second and a little less than twice as long as penultimate section of fourth vein, the latter about one-third as long as ultimate section and subequal to ultimate section of fifth vein; outer cross vein at about twice its own length from apex of fifth vein.

Length, 1·75 mm.

Type, Eidsvold, Queensland, 2.4.24 (Bancroft).

There are several described species of the genus with the two basal segments of fore tarsi armed with comb-like bristles, but none of these have the armature as in this species so far as I am aware. I described one, *biarmipes*, from India, but in it the combs are confined to the apical parts of each segment and do not extend along the whole length of the anterior surfaces as here.

Genus GITONIDES Knab.

The species described below falls most readily into *Gitonides*, but it differs from the genotype in having the frons much narrower anteriorly and the first posterior cell of the wing quite noticeably narrowed apically.

GITONIDES CONVERGENS, n. sp.

Head brownish testaceous; upper half of occiput fuscous, lower half white dusted; upper extremities of frontal orbits, ocellar spot and clypeus, fuscous; face slightly white dusted; palpi brownish, paler at apices. Thorax brownish testaceous, dorsum when seen from in front with a broad brownish central vitta which is faint in front of the suture, where it is sometimes divided centrally and which is divided between suture and hind margin, a broad branch curving to each side and between the two pairs of dorsocentrals, and a narrower central one continuing to hind margin, the disc laterad of the anterior and posterior portions of vitta white dusted, between these pale markings and lateral margins there is a broad brownish vitta; humeral angles testaceous; scutellum when seen from in front with a brown central line which broadens out and covers apex, a fainter brown mark on each basal angle and a less distinct dark mark on disc each side of the dark central line, the latter surrounded by whitish dusting. Abdomen testaceous, all tergites except the basal two largely or entirely black. Legs testaceous, femora browned, tibiae dark at apices, the mid pair most conspicuously so. Wings hyaline. Halteres yellow.

Frons at vertex about one-third of the head width, much narrowed anteriorly, at front margin not half as wide as long in centre; proclinate orbital bristle well above middle of frons, the anterior reclinate bristle quite small and about midway between the others; arista bare; face slightly carinate; antennae normal, inserted at middle of profile. Thorax with two pairs of postsutural dorsocentrals, the anterior pair short, about eight series of intradorsocentral setulae, one humeral and two sternopleurals; scutellum convex. Abdomen broad and short. Legs stout, normal. Inner cross vein at two-fifths from apex of discal cell; outer cross vein at less than its own length from apex of fifth vein; ultimate section of fourth vein over three times as long as penultimate section; first posterior cell quite noticeably narrowed apically.

Length, 3 mm.

Type, Eidsvold, Queensland, 1924 (Bancroft).

Family Agromyzidae.

Subfamily MILICHIINAE.

DESMOMETOPA VARIPALPIS, n. sp.

Female.—Head black, whitish-grey dusted, with the usual opaque black M-shaped frontal marking; cheeks yellowish below; palpi testaceous, with conspicuous irregular black spotting. Thorax black, slightly shining, evenly greyish dusted and without vittae. Abdomen greasy in type, black, and probably less dusted than thorax. Legs black, tarsi yellowish, darker at apices. Wings hyaline. Knobs of halteres yellow.

Each orbit with the two upper bristles directed outward over eyes, the two anterior bristles incurved; arista hair-like, almost bare; palpi large, a little longer than head, lanceolate, broader than cheek, their apices rather pointed, bristles short. Thorax with two pairs of postsutural dorsocentral bristles. Legs normal. Wings as in *m-atrum* Malloch.

Length, 2·5 mm.

Type, Bourke, N.S.W., 6.5.26.

I know no species of this genus which has the palpi coloured and shaped as has this one, these organs being in all others unicolorous or yellow with dark apices.

Family **Piophilidae.**

Piophila contecta Walker.

This species I previously listed as *latipes* Meigen. (These Proceedings, 1925, p. 316). Dr. O. Duda considers that *contecta* Walker is a distinct species, having two humeral bristles instead of only one, and the second segment of the fore tarsus about 1·5 as long as wide, not about as wide as long.

Besides the specimen already recorded by me I have seen another female specimen from Wahroonga, Sydney, N.S.W., 26.1.26.

I have before me what appears to be an undescribed genus of this family but have only one female specimen so defer describing it meantime.

Family **Sapromyzidae.**

Genus Sapromyza Fallén.

In presenting my synopsis of the species of this genus (These Proceedings, 1926, p. 33) I stated that undoubtedly there were many species still unknown to me and as evidence of this furnish descriptions of several that have been received since I completed the key. Under the description of each of these I have included notes which will serve to associate them with their most closely related forms in the key, but unfortunately there must yet be many undescribed species which can only be distinguished from those dealt with to date by a careful comparison with the complete descriptions or with the type-specimens.

I erect one new subgenus in the present paper for the reception of a very striking species from Sydney, but the others I retain in *Sapromyza sens. str.*, though several of them are rather aberrant from the genotype.

It will be necessary to publish a full key to the species later, but whether this duty may fall to me or another worker time will decide.

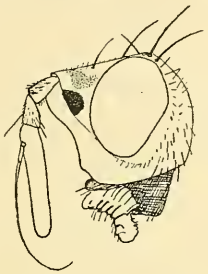
Subgenus Hendelomyza, n. subg.

Characters: Face concave in profile; basal segment of antenna as long as, or longer than, second, with some fine hairs below apically; sternopleura with but one bristle; thorax without presutural dorsocentrals. In other respects similar to *Sapromyza*.

Sapromyza (Hendelomyza) tenuicornis, n. sp. (Text-fig. 2.)

Female.—Head fulvous yellow, shining; ocellar spot fuscous, a fuscous line along inner margin of each orbital stripe which curves round anterior margin of latter and becomes wider there, almost connecting with the black spot between each antennal base and eye; some white dusting on sides and upper margin of frons; lower central part of face fuscous; parafacials white-dusted below the black

spot; third antennal segment brown, darker apically; arista black, yellowish at base; proboscis and palpi black. Thorax shining fulvous yellow, with two submedian vittae and one near each lateral margin white-dusted; pleura entirely white-dusted; scutellum paler yellow than mesonotum. Abdomen glossy black, yellowish on disc basally, where it is slightly grey-dusted. Legs yellow, apices of fore femora and tibiae infuscated. Wings honey yellow. Halteres brown.



Text-fig. 2. Head of *Sapromyza* (*Hendelomyza*) *tenuicornis*, from side.

Head in profile as in Figure 2; entire frons shining; anterior orbitals rather far from lateral margins; ocellars rather weak; arista subnude; head wider than high; proboscis stout. Thorax with but two pairs of postsutural dorsocentrals and one pair of prescutellar acrostichals; intradorsocentral setulae in four series in front of suture; scutellum convex, with four bristles; prosternum almost bare; mesopleura and sternopleura each with one bristle. Abdomen stout. Fore femur without preapical anteroventral comb; tibiae with preapical dorsal bristle. Inner cross vein almost below apex of first vein and at middle of discal cell.

Length, 7·5 mm.

Type, Bayview, Sydney, N.S.W., 19.12.25.

A very characteristic species which might eventually be placed in a separate genus, though I prefer to consider it as a subgenus at present.

It must be noted that *magnicornis* Malloch, with which *tenuicornis* has some characters in common, has two sternopleural bristles and the head quite differently shaped. This new species does not fit into any caption of my recently published key, the only other species having the antennae longer than the head being *magnicornis*.

SAPROMYZA RIPARIA, n. sp.

Male and female.—Head dull ochreous yellow; frons brownish in centre, ocellar spot fuscous; orbital stripes densely yellowish-grey dusted; a black or brown spot between each antenna and eye; antennae pale brown or yellowish, third segment and arista black; proboscis yellow; palpi black. Thorax subopaque ochreous yellow, rather densely greyish dusted, with two conspicuous brown submedian vittae which become wider behind, and traces of two sublateral vittae of the same colour behind suture; mesopleura and anterior part of propleura fuscous; scutellum brownish yellow, paler at anterior lateral angles and between apical bristles, and with two black apical spots. Abdomen ochreous, shining, with central part of each tergite darker and the apices paler. Legs testaceous yellow, apices of all femora, tibiae and tarsi, and bases of all tibiae, black. Wings yellowish hyaline. Halteres yellow.

Head almost normal in form, the face slightly receding below; orbital stripes receding from eyes anteriorly; frontal bristles all distinct; third antennal segment about 1·5 as long as wide; arista very short pubescent; proboscis stout. Thorax with three pairs of postsutural dorsocentrals, the anterior pair short and well behind suture; mesopleura with one bristle; sternopleura with two bristles rather close together; prosternum with a few very short hairs. Fore femur without anteroventral comb; mid tibia with two long apical ventral bristles; all tibiae with preapical dorsal bristle. Inner cross vein below apex of first vein and at middle of discal cell.

Length, 7-7·5 mm.

Type male, allotype, and one paratype, Clyde R., Nov., 1925 (H. J. Carter).

This species will run to caption 11 in my key to the species of the genus, but it is distinguished from *magnifica* Malloch by the unspotted wings and grey orbital vittae and from all the others falling under caption 10 by the entirely opaque frons.

Sapromyza brevicornis, n. sp.

Male and female.—Head black; frons velvety, the triangle and orbital stripes glossy; parafacials and sometimes the sides of face yellowish, the former white dusted; cheeks yellow below, black above; antennae fuscous, yellowish at bases, arista black; palpi and proboscis black. Thorax shining fulvous yellow, sometimes darkened a little on disc of mesonotum. Abdomen glossy black, yellow at base. Legs black, coxae, trochanters, bases of femora, of tibiae and of tarsi of mid and hind legs, yellow. Wings brownish hyaline. Halteres yellow.

Head of normal form, the face centrally vertically convex; frontal bristles normal, the anterior orbital distant from eye; antennae short, third segment not much longer than wide; arista with very short pubescence. Thorax with three pairs of postsutural dorsocentrals, the anterior short pair well behind suture; scutellum convex; mesopleura with one bristle; sternopleura with two; prosternum with a few hairs. Abdomen robust. Fore femur without an anteroventral comb; mid tibia with an unequal pair of apical ventral bristles; preapical dorsal bristle present on all tibiae. Wing venation as in *riparia*.

Length, 5-6 mm.

Type male, allotype, and two male and one female paratypes, Sydney, N.S.W., Sept.-Oct., 1925.

This species runs to caption 10 in my key, having the head black, with parafacials yellow, but is readily distinguished from *sciomyzina* Schiner by having the frons largely velvety instead of shining, and the third antennal segment not much longer than wide, instead of twice as long as wide.

Sapromyza urbana, n. sp.

Male.—Entirely testaceous yellow, shining, the frons not conspicuously shiuing, and with undifferentiated orbits. Wings hyaline. Halteres yellow.

Anterior orbital bristle not much in front of middle of frons, shorter than the ocellars; surface of frons with microscopic black hairs; antennae short; arista broken in type so that it is not possible to determine the nature of the hairing if any. Thorax with three pairs of postsutural dorsocentrals, the anterior pair rather weak, but in this character the species is about intermediate between the two groups defined in caption 9 of my key; hairs on thorax much weaker than in *unicolorata* Malloch, the median two series on dorsum most conspicuous. Legs slender, the fore femur with only two or three of the posteroventral bristles on apical half well developed, the anteroventral preapical comb present but weak.

Inner cross vein below apex of first vein; penultimate section of fourth vein not over half as long as ultimate section.

Length, 3·75 mm.

Type, Sydney, N.S.W., 8.10.25.

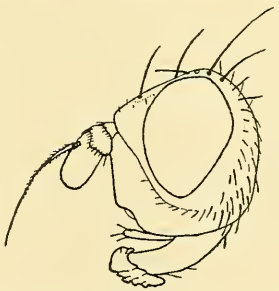
An inconspicuously coloured species with no outstanding external structural characters. It differs from any Australian species except *unicolorata* Malloch in being entirely testaceous yellow, and is a less robust species than it, with weaker hairing, and different venation. The hypopygia are distinct but I have only the type-specimens of each and do not care to dissect these, unless compelled to for lack of other material later.

An error occurs in caption 22, first section, of my key. The inner cross vein is beyond, not proximad of apex of first vein in *unicolorata*. This feature is correctly reported in the description of the species.

Sapromyza mariae, n. sp. (Text-figure 3.)

Male and female.—Fulvous yellow, distinctly shining. Frons dull, the orbital stripes and triangle shining; ocellar spot black; parafacials white dusted; antennae, palpi, and proboscis, yellow, arista fuscous. Dorsum of abdomen largely black or fuscous. Legs yellow, apices of fore and hind femora and tibiae, fore tarsi from before apex of basal segment, and mid and hind tarsi from before apex of third segment, black. Wings luteous hyaline. Halteres yellow.

Frontal bristles all well developed, anterior orbital distant from eye; third antennal segment fully 1·5 as long as wide, rounded at apex; arista subnude; head



Text-fig. 3. Head of *Sapromyza mariae* from the side.

in profile as in Figure 3. Thorax with three pairs of postsutural dorsocentrals, the anterior pair short; mesopleural hairs stronger than usual, one or two of them quite bristle-like; scutellum normal. Hypopygium stout, the forceps much shorter and stouter than in *flavimana* Malloch. Fore femur without preapical antero-ventral comb; mid tibia with two long apical ventral bristles; preapical dorsal bristle weak on hind tibia. Inner cross vein almost below apex of first vein and close to middle of discal cell.

Length, 6-6·5 mm.

Type, female, allotype, one male and one female paratype, St. Mary's, N.S.W., 12.8.24.

This species will run to *flavimana* Malloch in my key, but the latter has the frons entirely shining, the face flat and dull, and the fore femora more largely black, etc.

Sapromyza occipitalis Malloch.

Eight specimens, Sydney, N.S.W., October and November, 1925.

Sapromyza sciomyzina Schiner.

One specimen, Sydney, N.S.W., 25.10.25.

Sapromyza brunneovittata Malloch.

Two specimens, Sydney, N.S.W., 18.10.25.

Sapromyza stigmatica Malloch.

One specimen, Millgrove, V., Dec., 1925 (F. E. Wilson).

Sapromyza maculithorax Malloch.

Four specimens, Sydney, N.S.W., July, August, and November, 1924-25.

Sapromyza variventris Malloch.

A male of this species is darker than the type female, the spot at base of antennae on the parafacials being black, and the pale parts of the legs more brownish yellow. The thoracic vittae are also broader, and the abdominal markings are less regular.

Locality, Nevertire, N.S.W., 25.3.26, the same day and month as type, but a year later.

Genus Homoneura van der Wulp.

In one of my recent papers (These Proceedings, 1926, p. 551) I stated that I would present in my next paper a synopsis of the Australian species of this genus known to me, and though I am confidednt that my material contains but a small portion of the native species I feel that I ought to provide a synopsis of those already described in the interests of students of the family. This synopsis contains only 14 species, some of them so closely allied that their separation as distinct species has been based largely upon the structure of the male hypopygia, figures of some of which I present herein. I have previously referred to the importance of the male hypopygia as distinguishing characters of the species in this family and hope that an examination of the figured examples will create an interest on the part of some Australian student that will result in a comprehensive study of the family on this basis. One of the species figured exhibits an asymmetry of the inferior forceps which is unique in my experience in this family, but it appears to be a perfectly normal specimen in other respects.

Key to the species.

1. Wings with quite conspicuous brown or fuscous clouds or spots, the cross veins and the apex of second vein always clouded 2

   Wings clear or yellowish, at most the cross veins slightly clouded, none of the longitudinal veins clouded at apices 7

2. Thorax with only two of the three strong pairs of dorsocentrals behind the suture, the other pair in front of suture; wing with conspicuous fuscous markings, the most prominent consisting of a broad oblique fascia, the outer edge of which is at apex of second vein, extending over fourth vein but not to margin of wing, and enclosing a clear spot in first posterior cell; face largely fuscous, white below; a black spot between each antenna and eye; arista plumose; dorsum of thorax and abdomen largely fuscous; legs bicoloured, testaceous and dark brown ..... *atrogrisea* Malloch.

   Thorax with three strong pairs of postsutural dorsocentrals, or if there are but two such pairs there are no presuturals present 3

3. Frons opaque fuscous; both cross veins of wings and apex of second vein with fuscous clouds; arista short plumose ..... *fumifrons* Malloch.
   Frons yellow or brownish yellow; in addition to the wing spots mentioned above there are two other spots present, at or near apices of third and fourth veins 4
4. Spots on apical part of wing at extreme apices of the veins; arista with very short pubescence ..... *apicinebula* Malloch.
   Spots on apical part of wing not all at extreme apices of veins; arista plumose ... 5
5. Tips of palpi black; thoracic dorsum with a dark mark along inner side of humeral callosities and two narrow dark vittae along inner margin of lines of dorsocentrals ..... *proximella* Malloch.
   Palpi entirely yellow; no dark mark along inner margin of humeral callosities 6
6. Cell between auxiliary and first veins of wing dark at apex; thoracic dorsum with four faint, broad reddish vittae, the central pair extending on to disc of scutellum ..... *preapicalis* Malloch.
   Cell between auxiliary and first veins of wing clear; thoracic dorsum not noticeably vittate ..... *barnardi* Bergroth.
7. Halteres black; thorax and abdomen uniformly shining black; arista plumose; legs fuscous, tibiae and tarsi testaceous yellow ..... *signatifrons* Kertesz.
   Halteres yellow; thorax and abdomen fulvous or testaceous 8
8. Thorax distinctly vittate, with 1 + 3 pairs of strong dorsocentrals .....
   ..... *eidsvoldensis* Malloch.
   Thoracic dorsum not vittate, with three pairs of postsutural dorsocentrals 9
9. Abdomen with one or more of the tergites of apical part with a pair of round black spots 10
   Abdomen without evident paired black spots 11
10. Ocellar bristles short and weak; no dark dorsocentral vitta or series of spots on abdomen; superior forceps of hypopygium stout, rounded at apices (Text-fig. 4) ..... *indecisa* Malloch.
    Ocellar bristles long and strong; a more or less distinct dorsocentral dark vitta or series of spots on apical tergites of abdomen; superior forceps of hypopygium slender apically (Text-fig. 5) ..... *gordoni*, n. sp.
11. Third antennal segment and apices of palpi black; arista pubescent 12
    Antennae and palpi entirely yellow; arista long haired ..... *illingworthi*, n. sp.
12. Females 13
    Males 14
13. Preapical abdominal sternite glossy black only at apices of processes .....
    ..... *armata* Malloch.
    Preapical abdominal sternite entirely glossy black and heavily chitinized .....
    ..... *perthensis*, n. sp.
14. Superior hypopygial forceps simple, but slightly curved, not recurved (Text-fig. 7) ..... *asymmetrica*, n. sp.
    Superior hypopygial forceps pronouncedly recurved 15
15. Apices of superior hypopygial forceps simple, inferior pair long and slender (Text-figs. 8, 9) ..... *perthensis*, n. sp.
    Apices of superior hypopygial forceps branched, inferior pair broad and serrated on edges (Text-fig. 10) ..... *armata* Malloch.

HOMONEURA GORDONI, n. sp. (Text-figure 5.)

Male.—Very similar to *indecisa* Malloch, differing in colour in having the apices of some of the abdominal tergites blackened (possibly not invariably so) the apical two or three tergites with a central vitta or series of elongated dark spots, and the outer cross vein of wing slightly clouded.

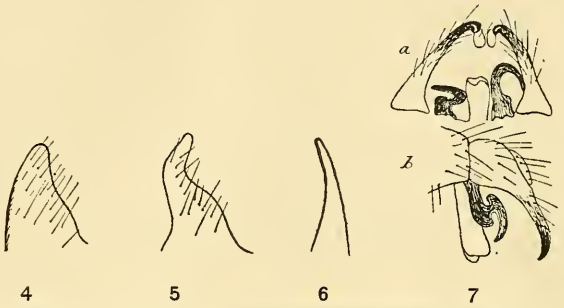
A larger species than *indecisa*, with frontal bristles all strong, the hypopygial forceps less robust, and the penultimate and ultimate sections of fourth wing vein subequal in length. The antennae are missing in type specimen so that it is impossible to determine if they are similar to those of *indecisa*.

Length, 5·5 mm.

Type, Gordonvale, N. Queensland, October (J. F. Illingworth).

HOMONEURA ILLINGWORTHI, n. sp. (Text-figure 6.)

Male.—Similar to *indecisa* in colour, but without any paired black spots on the apical abdominal tergites, each segment brownish or fuscous on hind margin and the apical two or three with a faint dark dorsocentral elongate spot. Antennae and palpi yellow; frons dull, orbits and ocellar region shining. Wings yellowish, outer cross vein slightly clouded.

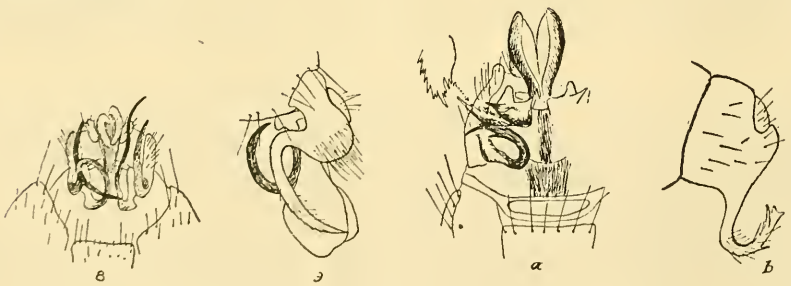


Figs. 4, 5 and 6. Superior hypopygial forcep of *Homoneura indecisa*, *H. gordoni*, and *H. illingworthi* respectively.
Text-fig. 7. Hypopygium of *Homoneura asymmetrica*. *a*, from below; *b*, from the side.

All frontal bristles long and strong; arista plumose: third antennal segment fully 1·5 as long as wide; face slightly convex in centre vertically. Hairs below humeral bristles strong; centre of propleura with a few microscopic black hairs; prosternum also haired; thorax with three strong pairs of postsutural dorsocentrals and 8-10 series of intradorsocentral hairs; mesosternum quite regularly setulose on most of its length. Superior hypopygial forceps long and slender, tapered to a point (Text-fig. 6). Fore femur with an anteroventral comb; mid tibia with three strong apical ventral bristles. Penultimate section of fourth vein about three-fourths as long as ultimate section.

Female.—Similar to male, the abdominal markings more distinct.

I can see no fine hairs on the propleura but the specimen is not in good condition, and the pinning prevents a view of the mesosternum. Apical genital segment unspined.



Text-fig. 8. *Homoneura perthensis*, hypopygium from below.
Text-fig. 9. *Homoneura perthensis*, from the side.
Text-fig. 10. *Homoneura armata*, male hypopygium. *a*, from below, one side incomplete; *b*, from the side, superior forceps only.

Length, 5-5·5 mm.

Type, Gordonvale, N. Queensland, October (J. F. Illingworth); allotype, Cairns District, Queensland (Dodd).

Named in honour of Dr. J. F. Illingworth who collected the type specimen.

HOMONEURA PERTHENSIS, n. sp. (Text-figures 8 and 9.)

Male and female.—Very similar to *armata* Malloch in colour, but more shining, and the penultimate ventral abdominal segment in female entirely, or almost entirely, glossy black, instead of black at apex only.

Structurally the two species are very similar and, like *asymmetrica*, both have an isolated outstanding bristle on each side of mesosternum in front of middle instead of regular setulose hairs as in *illingworthi*. The female has the penultimate ventral segment differently shaped from that of *armata*, there being a short blunt process on each side at apex, while in *armata* the apical margin has a deep V-shaped ventral cleft dividing the two tapered apical lateral angles; the apical segment of the female in *armata* has about half a dozen stout black thorns, while there are only fine hairs present in *perthensis*. The male hypopygia of the two species are shown in Text-figures 8, 9 and 10.

Length, 5-5·5 mm.

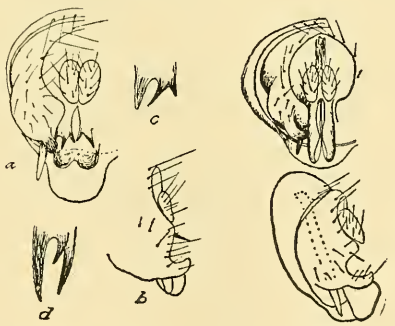
Type male, allotype, and one female paratype, Perth, W.A., 15.11.1925 (Nicholson).

HOMONEURA ASYMMETRICA, n. sp. (Text-figure 7.)

Male.—A smaller and less robust species than *perthensis*, but very similar in most respects. Readily distinguishable by the structure of the male hypopygium

Length, 4 mm.

Type, Perth, W.A. (J. Clark).



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Text-fig. 11. *Homoneura preapicalis*, male hypopygium. *a*, ventral view, one side incomplete; *b*, side view; *c*, apex of inferior forceps; *d*, another form, possibly a distinct species, Sydney.

Text-fig. 12. *Homoneura barnardi*, male hypopygium, ventral and lateral views.

HOMONEURA PREAPICALIS Malloch. (Text-figure 11.)

HOMONEURA BARNARDI Bergroth. (Text-figure 12.)

Sapromyza barnardi Bergroth, Stett. Ent. Zeit, 1894, p. 74.

I present figures of the male hypopygia of the above-named species to facilitate their identification (Text-figs. 11 and 12).

Family Neottiophilidae.

TAPEIGASTER BRUNNEIFRONS, n. sp.

Female.—Head black; frons a rich red-brown, with a spot of white dust on each vertical angle and another at middle against each eye; parafacials, cheeks and face, whitish dusted, the cheeks reddish brown; antennae brown, slightly dusted; proboscis black; palpi reddish brown. Thorax shining brownish-black, with brownish dusting, the dorsum with two submedian vittae and the lateral margins white dusted; pleura white dusted. Abdomen shining black, yellow at base, and centrally on apical two tergites. Legs black, a testaceous yellow ring at base and another at middle of each tibia, tarsi testaceous yellow. Wings yellowish hyaline. Halteres yellow.

No distinct orbitals present, the hairs on anterior margin of frons setulose; arista subnude. Only the prescutellar dorsocentrals and acrostichals present; scutellum short, rounded in outline, convex, haired on disc, the basal pair of bristles much shorter than the apical pair; sternopleura with one bristle. Abdomen short and broad, tapered at apex. Femora of all legs stout, armed with short stout spines on apical halves of anteroventral and posteroventral surfaces; preapical dorsal bristle indistinct on fore and hind tibiae. First posterior cell of wing narrowed apically.

Length, 7 mm.

Type, Newcastle, N.S.W., 7.4.26.

The darkest coloured species of the genus known to me.